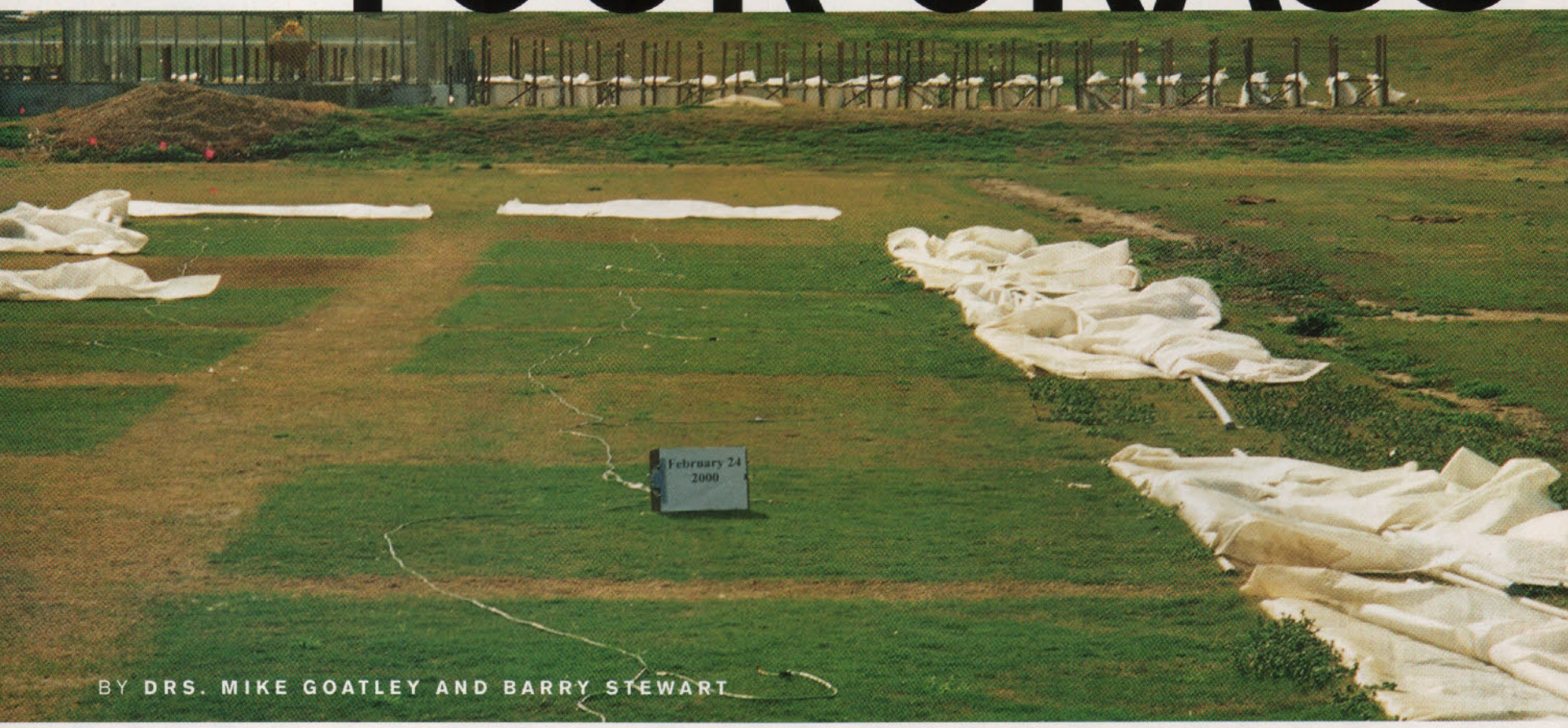
COVERING YOUR GRASS



BY DRS. MIKE GOATLEY AND BARRY STEWART

Bermudagrass is an excellent choice for football fields in the warm climates of the United States. Yet a major concern is that the grass often loses color and enters dormancy well before the game season ends. To improve field appearance and playability, many bermudagrass turfs are overseeded with perennial ryegrass so that play continues on a green, actively growing turf. However, the competition between the ryegrass plants and the bermudagrass will at the very least lead to a severely weakened bermudagrass turf just before it enters winter dormancy.

The playing season for most football teams ends the first weekend in December. Therefore, the necessity of overseeding for possibly one or two late season games is a question that warrants careful consideration regarding the expense in establishing and maintaining the ryegrass and the competition it creates with the bermudagrass. Painting the bermudagrass is one alternative to gain color, but what about another approach? At Mississippi State we have researched the application of turf blankets on a temporary basis to maintain bermudagrass color through the end of the season.

Research method

A Tifway bermudagrass turf maintained at 0.75 inches represented our football field over the fall and winter months of 1998-2001. The grass was fertilized regularly throughout the growing season to promote density and desirable color. Beginning the first week of October, one-half of the turf area was sprayed with chelated iron at the level of 2.5 pounds Fe/A, and the applications continued on a weekly basis for that month. A non-woven turf blanket (white, spunbonded polypropylene #32N01) was used for the covering treatments based on predicted nighttime temperatures from the National Weather Service. The turf blankets were applied according to four temperature covering treatments: no covers applied, or covers applied when temperatures were predicted to be 59, 49, or 39 degrees F.

If daytime temperatures the following day were not predicted to reach at least 60 degrees F, the covers remained in place. When the temperatures finally got cold enough to result in killing frost under the blankets, the covers remained in place until complete green-up occurred next spring. Rhizomes were sampled from all plots in November, January, and April of the 1999-00 and 2000-01 seasons to determine what effect the use of turf blankets had on levels of stored total nonstructural carbohydrates (TNC).

Research results

The average date for a killing frost on the Mississippi State campus is November 6, and during the three years of our research the first killing frost dates were Nov. 5, Nov. 3, and October 24. All cover treatments prevented any visible frost damage on these dates. However, there were few differences in turf color between any of the covering temperature treatments, indicating application of the covers for frost protection was not necessary until the temperatures were forecast to be at least 39F. This is a very desirable aspect of a covering program due to the time and labor involved in blanket application. For climates similar to Mississippi's, night temperatures below 39F will

not regularly occur until very late in the football season.

As expected, turf color was improved by foliar Fe applications. This micronutrient continues to be an excellent tool to promote late season bermudagrass color without a surge in shoot growth. However, the Fe treatment alone did not prevent killing frost damage, and resulted in no visible turf response the following spring.

We observed acceptable bermudagrass color under the temporary covers until nighttime air temperatures fell to approximately 22F. The dates when these temperatures occurred in the three years' trials were January 3, December 22, and December 12, respectively. In all trials, the turf color was acceptable for the duration of the fall football season (see photo on previous page).

Keeping the covers on the plots during the winter months resulted in spring green-up 4-6 weeks earlier than uncovered turf the following spring. Completely green turf was observed in the covered plots by March 16, March 2, and April 2 from 1999-2001, respectively (see photo this page). The uncovered plots reached complete greenup by May 2, March 30, and May 5 over the same time frame.

The only negative covering responses that we observed were an increase in winter annual weed pressure and fire ant activity, both primarily because of the soil warming. There was no evidence of increased disease pressure, though we anticipate this could be a problem. We saw no visible evidence that bermudagrass survival was altered because the grass was not adequately hardened off. Instead, we found that the turf apparently benefited from the extension of the growing season in each year's trial. The TNC levels in bermudagrass rhizomes were actually higher in the covered turf plots in January and April of each year as compared to the uncovered turf, indicating that the maintenance of a photosynthetically active turf allowed the grass plant to store more food reserves.

Applications

The primary benefit of the turf blanket application was frost protection and maintenance of a green canopy. We are not suggesting that the use of temporary turf blankets can encourage enough bermudagrass regrowth to withstand heavy field use during the fall season. However, we do anticipate there is potential for some enhancement in turf recovery earlier in the season when both day length and temperatures are not quite so limiting. This must be further researched. Bermudagrass athletic fields in more northern climates will logically face earlier killing frost dates and anyone considering the use of blankets in these areas should carefully consider their average weather data to see how covers might fit their program.

What are some concerns of the temporary covering strategy? The cost of approximately 2 acres of turf blanket for a football field and the labor required to install the blanket(s) are very important. If handled and stored properly, most turf blankets tout minimal life expectancies of at least 7 years (many say they **(continued on page 27)**

(continued from page 14) tion and quality control process. Stockpiled materials are tested before shipment to the project site to ensure they meet project specifications. The turf manager or some other owner's representative should be present during any construction materials sampling event.

To aid in sampling, a 2.5 inch schedule 40 PVC pipe about 45-50 inches long should be cut at a 45 degree angle at one end. The pipe acts as a sample collection tube. It is also useful to have a rubber mallet to tap samples out of the pipe.

At least eight sampling locations should be randomly selected for a 1,000-ton stockpile. The locations should vary from the top to bottom and all around the pile. At least half of the samples should be taken from the lower third of the stockpile. Brush away the outer 6 inches of the pile and push the clean pipe as far as possible into the stockpile. Pull the pipe out and tap the sample into a clean bucket. Thoroughly mix the material after all samples are taken. Remove one gallon out of the bucket to fill a zip-lock bag. Label the composite sample appropriately with a permanent marker, and indicate from which stockpile the sample was taken.

To protect the samples during shipment, it's usually best to send the samples in a sturdy box with sufficient packing material included. Sample IDs should always be on the outside of the sample bag or container. A letter or testing request form should also be included with the sample submittal. The letter should include any pertinent sampling information, testing required, information on how to contact you, and info on where to send the report.

Follow these guidelines and you can take comfort in knowing that you have taken a good representative sample. **ST**

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(continued from page 18) last indefinitely), so the investment in the product is long-term. Also, manpower or equipment to install the covers can be a major limitation, in addition to the handling characteristics of the cover in wet, windy, and cold conditions. Covers differ greatly in handling characteristics. Another point to consider is the potential for leaving the cover in place for more than one day during the season. The non-woven turf blanket in this research allowed approximately 70 percent sunlight to pass through the blanket. This amount of radiation resulted in desirable turf color and appearance even when the cover was left in place days at a time. It will not always be possible (and realistically not even desirable) to install and remove a cover on a daily basis. **ST**

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